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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/525,900	03/15/2000	Miroslaw Z Bobep	0054-0199P	9215

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DIEP, NHON THANH

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

2613

DATE MAILED: 08/28/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/525,900	BOBEP, MIROSLAW Z	
Examiner		Art Unit	
Nhon T Diep		2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on preliminary amendment filed 3/15/2000.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-37 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 36-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims are an omnibus type claim.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 13-22 are rejected under 35 U.S.C. 102(b) as being anticipated by over Iu (US 5,471,252).

Iu discloses a method and apparatus for estimating motion vector fields by rejecting local outliers comprising the same method of processing data relating to an image in a sequence of digitized images comprising deriving a motion vector field for the image (col. 4, lines 6-10) and smoothing the motion vector field by replacing a given motion vector by a new motion vector derived using averaging based on adjoining motion vectors, the method further comprising identifying where motion discontinuities occur in the image and omitting a motion vector or vectors from the averaging if they are separated from the given motion vector by a motion discontinuity (col. 5, line 19 – col. 6,

line 4) as specified in claims 13, 15 and 22; the new motion vector is derived using a prediction error (col. 2, lines 6-8 and col. 5, lines) as specified in claims 14 and 15; motion discontinuities occur in the image and omitting a motion vector or vector from the averaging if they are separated from the given motion by a motion discontinuity discontinuity (col. 5, line 19 – col. 6, line 4) as specified in claims 16 and 20; motion vector is derived for each pixel (col. 1, lines 15-21) as specified in claims 17 and 21; averaging takes account of the given motion vector (col. 5, line 19 – col. 6, line 4) as specified in claim 18; using a weighted average (col. 5, lines 5-10) as specified in claim 19.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 11-12, 23-30 and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozcelik et al (US 5,574,663), in view of well known feature as disclosed in the Background of the Invention (page 1, lines 5-18, specially, lines 16-18).

Ozcelik et al discloses a method and apparatus for regenerating a dense motion vector filed comprising the same method of representing motion in a sequence of digitized images comprising deriving a dense motion vector field for an image (col. 2, lines 39-41 and 61-64) as specified in claims 1 and 30; a motion vector is derived for pixel blocks sized less than an 8 X 8 pixel block; a motion vector is derived for each

pixel (col. 2, lines 10-15) as specified in claims 2-3; and a hybrid DCT-MC codec comprising an encoder according to claim 28 and a decoder according to claim 29 (fig. 8) as specified in claim 35. It is noticed that Ozcelik et al does not particularly disclose a step of performing vector quantization on the motion field as specified in claims 1 and; vector quantization is performed on the components of the motion vectors separately as specified in claims 4; performing VLC after vector quantization as specified in claims 5, however, Ozcelik teaches to use a dense motion vector field, DVF, in a motion compensated video encoder and that the quantization step is a well known step to be performed in the encoder as admitted by the applicants in the Background of the Invention (page 1, lines 5-18, specially, lines 16-18) and the step is to be followed by the VLC step therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to perform vector quantization and the VLC step in the motion compensated video encoder, on the motion vector field to reduce image information before transmit to the decoder. Further more, it would also have been obvious to process a vector on the components to simplify the process.

With regard to claim 11-12, 23-29 and 31-34: Official Notice is taken with regard to the step of generating and encoding a plurality of versions of a motion vector field at different resolutions and comparing the coarse resolution field with the finer resolution field to produce a residual error, and coding the residual error at the finer resolution. It is the examiner's opinion that these steps are well known in the pertinent art for encoding image signals with different resolutions to meet bandwidth requirements of different users and therefore, it would have been obvious to one of ordinary skilled in the art at

the time the invention was made to modify the system of Ozcelik et al by coding motion vector field with different layers with different resolutions to accommodate different users.

6. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iu
(US 5,741, 252).

Ozcelik et al in view of Iu

As applied to claim 1 above, it is noticed that Ozcelik et al, while discusses the step of determining a dense motion vector field in the moving object boundary, does not particularly disclose the step of identifying where motion discontinuities occur in the image; processing the motion vector field to reduce the entropy of the vector field before vector quantization; the motion discontinuities are used by averaging in the entropy-reduction processing; wherein the entropy-reduction is performed by averaging neighbouring motion vectors; a motion vector separated by a motion discontinuities is not used in the averaging as specified in claims 7-10. Iu teaches the eliminating of erroneous due to motion discontinuities (col. 9, lines 38-45) and by also eliminating the adjoining error motion vectors from being entered into the average (col. 3, lines 6-19 and col. 5, lines 20-30) and therefore, it would have been obvious to one of ordinary skilled in the art at the time the invention was made to modify the system of Ozcelik et al by eliminating of erroneous due to motion discontinuities and by eliminating the adjoining error motion vectors from being entered into the average as taught by Iu. Doing so would help to reduce error.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Weiss et al (US 5,557,341) discloses an iterative method for estimating motion content in video signals using successive reduced block size.
- b. Pandel (US 5,719,631) discloses a method and apparatus for coding a video data stream of a video sequence formed of image blocks.
- c. Chevance et al (US 6,473,462) discloses a process for estimating a dominant motion between two frames.
- d. Lee et al (US 6,026,182) discloses a feature segmentation method segments selected objects from other objects

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhon T Diep whose telephone number is 703-305-4648. The examiner can normally be reached on m-f.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S Kelley can be reached on 703 305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-2600.

ND
17 Aug 2003



NHON DIEP
PRIMARY EXAMINER